

# **Aquatic Conservation Strategy Analysis – Six Shooter Project**

## **Introduction**

The project is located within the Dock Well, Hill 22, Antelope Well, and Six Shooter Pass 7<sup>th</sup> field watersheds which lie within the Mount Dome Hydrologic Sub-Area of the Lost River Hydrologic Area.

The Forest Plan contains the components, objectives and standards and guidelines for consistency of projects with the Aquatic Conservation Strategy (ACS). The Record of Decision (ROD) for the Forest Plan (USFS 1995) is the guiding document for Forest projects; the Forest Plan ROD incorporates the Aquatic Conservation Strategy standards and guidelines from the ROD for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl (commonly known as the Northwest Forest Plan) (USDA Forest Service and USDI Bureau of Land Management 1994b).

This report will review the relevant recommendations of watershed analyses that encompass a majority of the Six Shooter project area. The Aquatic Conservation Strategy Report analyzes the influence of alternatives 2 and 3 since they have the greatest potential to affect to watershed processes and Aquatic Conservation Strategy objectives. Detailed descriptions of the actions proposed are in Chapter 2 of the Six Shooter Environmental Analysis (EA).

## **Riparian Reserves**

The interim widths defined in the Forest Plan were used to define the Riparian Reserve widths for analysis and project design. See project design feature HYDR-1 in table 2-1 in Chapter 2 of the Six Shooter EA for details on the widths defined by the Forest Plan. There are 75 acres of RR within the Six Shooter project area. Only the low intensity fire treatment will be allowed in RR. Low intensity fire will restore fire to the ecosystem while preserving canopy, coarse downed woody debris, and soil cover.

## **Key Watersheds**

Key Watersheds are defined by the Forest Plan and were set aside as a system of large refugia comprising watersheds that are crucial to at-risk fish species and stocks and provide high quality water. There are no Key Watersheds in the project area, so standards and guidelines related to key watersheds are not addressed in this project.

## Watershed Restoration

Although watershed restoration is not the explicit purpose of the project, proposed actions were developed with input from wildlife specialists, fish specialists, and earth scientists to insure that Forest Plan direction and Best Management Practices from the Pacific Southwest Region Water Quality Management for Forested Lands in California publication are met (USFS 2011). Project-specific Best Management Practices and project design features were developed to reduce potential negative effects and meet the requirement of the Forest Plan (p. 4-106) to prohibit and regulate activities in Riparian Reserves that can retard or prevent attainment of the Aquatic Conservation Strategy Objectives.

Watershed restoration, including removing and upgrading roads, and restoration of large trees in RRs, is an ongoing program on the KNF, but not part of the purpose and need for the Six Shooter project. Some proposed treatments in the project contribute to watershed restoration. Encouraging the growth of large, desirable tree species such as ponderosa pine through the proposed thinning of dense forest stands will improve watersheds. Hydrologically stabilizing temporary roads used in the project will maintain watershed condition.

## Watershed Analysis Recommendations

The Goosenest Adaptive Management Area Watershed Assessment includes recommendations for the project area. The relevant recommendations and how the project complies with the recommendations are discussed below.

<b>Recommendation</b>	<b>Compliance Analysis</b>
Conduct a Watershed Improvement Needs Inventory (#2)	A sediment source inventory was completed to meet the requirements for the Basin Plan and the Total Daily Maximum Load under the Clean Water Act. No sediment sources were identified in the project area.
Conduct stream condition inventories on the major Adaptive Management Area streams (#3)	A complete field review of the Riparian Reserves in the project area. There are no major streams in the project area.
Identify sediment sources through the Watershed Improvement Needs Inventory and restore sites (#6)	A sediment source inventory was completed to meet the requirements for the Basin Plan and the Total Daily Maximum Load under the Clean Water Act. No sediment sources were identified in the project area.
Evaluate stream access sites (for water drafting) to minimize impacts (#7)	Project Design Features have been incorporated into the alternatives to minimize impacts of water drafting by the project.

## Aquatic Conservation Strategy

*Alternative 2 and 3*

**1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted.**

In the short and long-term, all action alternatives will maintain and restore the characteristics listed above by: 1) Thinning overstocked timber stands to improve forest health and promote mature tree characteristics (Alt 2 and 3); 2) Retention of leave groups (Alt 2 only) which will improve stand diversity; 3) creation of small openings which will improve stand diversity (Alt 2 and 3); 4) reduction of juniper which will maintain and restore healthy shrub-steppe plant communities; 5) prescribed burning which will reduce accumulated fuels and restore fire to the ecosystem, which will further diversify the landscape within the project boundary. Combined treatments will reduce the risk of stand-replacing wildfire to within the range of natural variability. These beneficial effects will be manifested primarily at the 7<sup>th</sup> and 6<sup>th</sup> field watershed scales.

**2. Maintain and restore spatial and temporal connectivity between watersheds.**

In the short and long term, none of the action alternatives will result in any physical or chemical barrier to migration of wildlife or aquatic species. The treatments are designed to improve forest health, shrub-steppe plant community health, and ecological diversity in the project area. The action alternatives are moving the stand densities and compositions toward the reference conditions. Wildlife and aquatic connectivity will be maintained and/or restored by the alternatives. The beneficial effects will be manifested at the site, 7<sup>th</sup> and 6<sup>th</sup> field watershed scales.

**3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.**

Within RR, only the low intensity fire treatment will be allowed. Low intensity fire may have a short term effect on sedimentation within affected RRs, but this effect is not expected to be substantial and will be within the range of natural variability. Treatment areas adjacent to the RRs will have a reduced risk of stand-replacing fire, which will decrease risk of wildfire-related disturbance to the physical integrity of the aquatic system. Benefits will be manifested at the 7<sup>th</sup> and 6<sup>th</sup> field watershed scales. The potential short-term effect of a small increase in sedimentation will be manifested at the site scale, if at all.

**4. Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems.**

There will be no effects to shading of waters within RRs as a result of the project at all scales. Shading trees within RRs will not be removed by any treatments. Potential sedimentation in RRs as a result of the low intensity fire treatment will be negligible or non-existent. Hydrological stabilization of the temporary roads on existing road beds will reduce the potential sedimentation in RRs. New temporary roads are not proposed in RRs. Landscape-level thinning and prescribed fire treatments will reduce the risk of stand-replacing wildfire across the project, which will in turn reduce the risk of impacts to water quality as a result of wildfire. The benefit of reduced risk of wildfire will be realized at the 7<sup>th</sup> and 6<sup>th</sup> field watershed scale. Potential short-term sedimentation will be manifested at the site scale, if at all.

**5. Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the regime include the timing, volume, rate, and character of sediment input, storage, and transport.**

In the short term, sediment delivery to stream channels may be slightly increased by the use of temporary roads on existing roadbeds within RRs and by low intensity fire treatment within RRs. This potential effect is expected to be within the range of natural variability and short-lived. Over the long term, there will be no increase in sedimentation within RRs in the Six Shooter project at any scale. Short term sedimentation effects, if any, will be present at a site scale. The Six Shooter project will reduce the risk of stand-replacing fire at a landscape level, which will reduce the risk of a greatly altered sediment regime resulting from wildfire. This reduction of risk would be realized at the 7<sup>th</sup> and 6<sup>th</sup> field watershed scale.

**6. Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats, and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.**

In the short and long term, it is not anticipated that peak flows will be measurably affected by the action alternatives at any of the scales analyzed. Peak flows were not analyzed as part of the Six Shooter EA, because all streams present in the project are seasonal and/or intermittent, and are not connected to higher order streams. Water drafting will be regulated in order to avoid adverse effects to aquatic habitat.

**7. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows.**

It is not anticipated that action alternatives will alter the timing, variability, or duration of floodplain inundation, since streams are not connected to higher-order streams, and water generally is absorbed by soils and becomes groundwater. At a site scale, all action alternatives will maintain or restore water table elevation in meadows in both the short and long term by removing encroaching conifers.

**8. Maintain and restore the species composition and structural diversity of plant communities in riparian areas.**

No treatments are expected to adversely affect species composition and structural diversity of plant communities in riparian areas. Low intensity fire is not expected to change the species composition of riparian areas, and may restore structural diversity of plant communities which have been homogenized over time by wildfire suppression. This beneficial effect will be realized at a site scale, since riparian areas are uncommon in the project area. Effects will not be measurable beyond a site scale.

**9. Maintain and restore habitat to support well-distributed populations of native plant and invertebrate riparian dependent species.**

Action alternatives are designed to maintain and restore habitat that was historically present in the project area. Low intensity prescribed fire will preserve coarse woody debris and soil cover (important to invertebrate riparian species) while potentially increasing opportunities for fire-dependent native plants to successfully establish and reproduce. Existing native plants will be maintained, and structural diversity of existing native plant communities will be improved. Beneficial effects will be manifested at the site scale.